

Being a Digital Citizen: At Home, School, and Work

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Module Objectives

By the end of the module, you should be able to:

- Define digital literacy
- Explain society's reliance on technology
- Describe how to protect your personal information
- Use technology to find a career
- Describe the legal and ethical responsibilities of a digital citizen
- Identify the uses of assistive technologies

How Technology Impacts You (1 of 3)

- **Digital literacy** means acquiring current knowledge and understanding of computers, mobile devices, the web, and related technologies.
- A **digital citizen** is a person familiar with how to use technology to become an educated and productive member of the digital world.
- A **computer** is an electronic device that operates under the control of instructions stored in its memory and can accept and process data to produce information for future use.



How Technology Impacts You (2 of 3)

- The **Internet** is a global collection of millions of computers linked together to share information.
- A **network** is a collection of two or more computers connected to share resources.
- **Wi-Fi** is a wireless data network technology that provides high-speed data connections and is not attached to any device. It is used for mobile devices.
- A **server** is a powerful, high-capacity computer you access using the Internet or other networks; it stores files and “serves” them, that is, makes the files available to users; usually grouped at a location called a data center.

How Technology Impacts You (3 of 3)

- An **online social network** is an online community where users can share their interests, ideas, stories, photos, music, and videos with other registered users via a social networking website, such as Facebook, Twitter, Instagram, or Snapchat.
- **Big data** is a term that refers to the large and complex data sources that defy easy management with traditional data processing methods.



Figure 1-1 Knowledge of online social networks is a key component of digital literacy.

How Technology Impacts Society (1 of 7)

- The first generation of computers used vacuum tubes, which are cylindrical glass tubes that control the flow of electrons.
 - ENIAC (Electronic Numerical Integrator and Computer)
 - UNIVAC (Universal Automatic Computer)
- Their use and availability were constrained by:
 - their large size
 - the amount of power they consumed
 - the heat they generated
 - how quickly they wore out

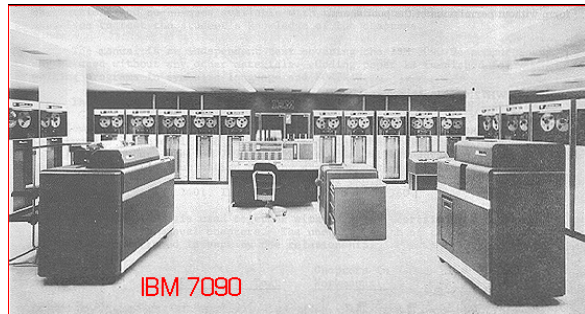


Figure 1-3 Electronic digital computer with vacuum tubes.

How Technology Impacts Society (2 of 7)

- First generation – used **vacuum tubes**
- Next generation – replaced vacuum tubes with **transistors**
- 1960s – **integrated circuits**
- 1970s and 1980s – the **personal computer (pc)** gained popularity



How Technology Impacts Society (3 of 7)

- The **Internet of Things (IoT)** is an environment in which processors are embedded in every product imaginable (things), and these things, in turn, communicate with one another via the Internet or wireless networks.
- **IoT-enabled devices** are often referred to as **smart devices** because of their capability to communicate, locate, and predict.
- Smart devices often have associated apps that control and interact with them.



Figure 1-5 Smart devices use IoT to control home functions, such as a thermostat.

How Technology Impacts Society (4 of 7)

- Embedded computers are a part of the IoT.
- An embedded computer is a computer that functions as one component in a larger product and has a specific purpose.
- Embedded computers are small and have limited hardware on their own but enhance the capabilities of everyday devices.
- Embedded computers perform a specific function based on the requirements of the product in which they reside.

How Technology Impacts Society (5 of 7)



Figure 1-6 Some of the embedded computers designed to improve safety, security, and performance in today's vehicles.

How Technology Impacts Society (6 of 7)

- Manufacturing can use sensors to monitor processes and increase the quality of finished goods.
- Robotic arms can help ensure precision during the manufacturing process.
- Retail can use sensors to track inventory or send coupons to customers' phones while they shop.
- Shipping companies can track the mileage and location of their trucks and monitor driving times to ensure the safety of their drivers.



Figure 1-8 Manufacturers can use a tablet to control a robotic arm.

How Technology Impacts Society (7 of 7)

- A **healthcare** provider can use IoT to:
 - ✓ Connect to a patient's wearable blood pressure or glucose monitor.
 - ✓ Send prescription updates and changes to a pharmacy and alert the patient of the prescription.
 - ✓ Track and store data provided by wearable monitors to determine necessary follow-up care.
 - ✓ Send the patient reminders about upcoming appointments or tests.
- The **digital divide** is the gap between those who have access to technology and its resources and information, especially on the Internet, and those who do not.
- Socioeconomic and demographic factors such as age, income, location, and education contribute to the digital divide, which can impact individuals, households, businesses, or geographic areas.



Secure IT: Protect Your Privacy (1 of 4)

- **Privacy** is defined as the state or condition of being free from public attention to the degree that you determine.
- Privacy is freedom from attention, observation, or interference, based on your decision.
- Privacy is the right to be left alone to the level that you choose.
- **Identity theft** involves using someone's personal information, such as their name, Social Security number, or credit card number, to commit financial fraud.
- The victim is charged for the purchases and suffers a damaged credit history that can lead to being denied loans for school, cars, and homes.

Secure IT: Protect Your Privacy (2 of 4)

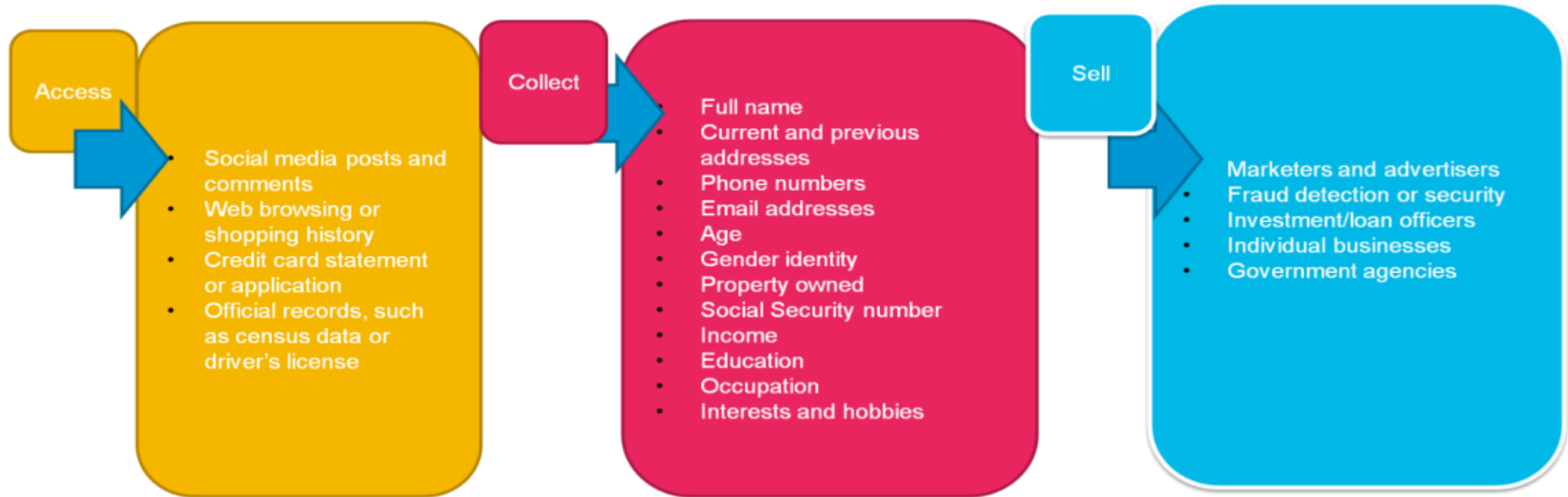


Figure 1-9 Ways your data can be accessed, collected, and sold.

Secure IT: Protect Your Privacy (3 of 4)

Table 1-1 How Personal Information Is Stolen.

Technique	Explanation
Dumpster diving	Personal information from discarded credit card statements, charge receipts, and bank statements can be retrieved after being discarded in the trash.
Phishing	In phishing, attackers attempt to deceive you into revealing personal or financial information when you respond to an email message or visit a website.
Pretexting	An attacker who pretends to be from a legitimate research firm asks for personal information.
Stealing	Stolen wallets and purses contain personal information that can be used in identity theft.
Data mining	Attackers attempt to guess your passwords or password security questions by soliciting a response to a query on an online social media site that prompts you to enter information such as a pet's name, home state, and more.

Secure IT: Protect Your Privacy (4 of 4)

Consider the following safeguards to protect your privacy:

- Do not provide personal information either over the phone or through an email message.
- Keep personal information in a secure location in a home or apartment.
- Be cautious about what information is posted on social networking sites and who can view your information.
- Carefully review financial and billing statements each month as soon as they arrive.

How Technology Impacts the Professional World (1 of 6)

- An intelligent workplace makes use of technology to connect employees to the company's network, communicate with one another, use productivity software and apps, meet via web conferencing, and more.
- Companies use online collaborative productivity software to enable employees to share documents, and to make edits or comments.
- Schools use social networking tools to promote school events, work cooperatively on group projects, and teach concepts such as anti-bullying.
- Online productivity software enables students to work collaboratively on projects and send the finished assignment to the teacher using email, reducing the need for paper printouts.

How Technology Impacts the Professional World (2 of 6)



Figure 1-10 Interactive whiteboards allow teachers to use a mouse or touch to manipulate, edit, or add data to a screen.

How Technology Impacts the Professional World (3 of 6)

- A college or university might use a **learning management system** to set up web-based training sites where students can check their progress in a course, take practice tests, and exchange messages with the instructor or other students.
- The **mobile health (mHealth)** trend refers to health care professionals using smartphones or tablets to access health records stored on the cloud, and patients using digital devices to monitor their conditions and treatments, thereby reducing the need for visits to the doctor's office.
- Health care also uses **3-D printers** to manufacture skin for burn patients, as well as prosthetic devices and casts.

How Technology Impacts the Professional World (4 of 6)

- **Telemedicine** is the use of telecommunications technology, including secure web-based videoconferencing, to diagnose and treat patients remotely, which provides rural or remote patients access to doctors when an in-person medical visit is not possible.



Figure 1-11 Telemedicine appointments can be useful when in-person medical visits are not possible.

How Technology Impacts the Professional World (5 of 6)

- Transportation workers use handheld computers to scan the codes on packages before loading them for shipping.
- Computers find an efficient route for the packages and track their progress.
- Drivers use GPS to navigate to the delivery destination, avoiding traffic and hazardous conditions.



Figure 1-12 The transportation industry uses code scanning to track packages.

How Technology Impacts the Professional World (6 of 6)

- Manufacturers use **computer-aided manufacturing** (CAM) to streamline production and ship products more quickly.
- With **CAM**, robots perform tasks that are too dangerous, detailed, or monotonous for people.
- A company's computers monitor assembly lines and equipment using machine-to-machine communications between machines, equipment, and devices to perform tasks.
- By creating a profile on a career networking site or creating a personal website that showcases your talents, hiring managers can learn more about you beyond what you can convey in a traditional, one-page resume.

How to Use Technology in Your Job Search (1 of 3)

Create a Professional Online Presence

- Your professional online presence is often the first thing a recruiter or interviewer will see.
- Online professional networks can help you keep up with former coworkers, instructors, potential employers, and others with whom you have a professional connection.
- **LinkedIn** is a social networking site designed to provide business and employment-oriented services.

■ LinkedIn

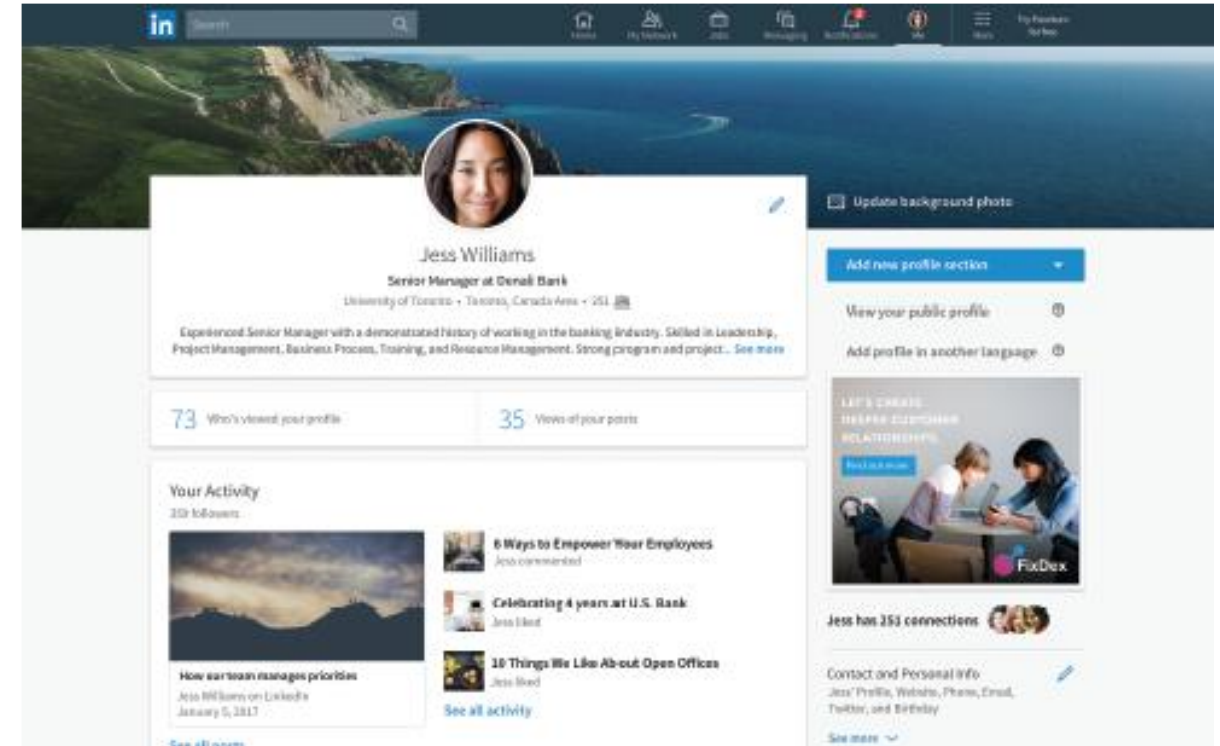


Figure 1-13 LinkedIn is a career-based online social networking site.

How to Use Technology in Your Job Search (2 of 3)

Consider the following tips when creating an online presence:

- Avoid humorous or informal names for your account profiles, blogs, or domain names.
- Include a photo that shows your best self.
- Upload a PDF of your resume.
- Include links to videos, publications, or digital content you have created.
- Proofread your resume, blog, website, or profile carefully to avoid spelling and grammatical mistakes.
- Enable privacy settings on your social media accounts and never post anything online that you would not want a potential employer to see.

How to Use Technology in Your Job Search (3 of 3)

Some areas that offer certifications include:

1. Application software
2. Data analytics, database, and web design
3. Hardware
4. Networking
5. Operating systems
6. Programming
7. Cybersecurity

How Convergence Impacts Technology (1 of 3)

- **Convergence** is the increasing integration of technological capabilities into a growing number of previously unrelated devices. For example, you can access some of the same email, social networking, and gaming apps and accounts on your laptop, tablet, and smartphone.

How Convergence Impacts Technology (2 of 3)

Media and Gaming Devices

- A **digital camera** is a camera that creates a digital image of an object, person, or scene.
- A **digital media player** is an application that lets you play audio and video files; most tablets and smartphones include media players.
- One can download digital media to your device, or you can play the media while it streams.
- **Streaming** is a way of receiving audio and video content on your device as it is being downloaded from the web.
- A **wearable device**, or **wearable**, is a small, mobile computing consumer device designed to be worn.

How Convergence Impacts Technology (3 of 3)

Media and Gaming Devices

- An **activity tracker** is a device that monitors heart rate, measures pulse, counts steps, and tracks sleep patterns.
- A **smartwatch** can communicate with a smartphone to make and answer phone calls, read and send messages, access the web, play music, work with apps, such as activity trackers and GPS, and more.
- A **game console** is a hardware device that allows you to play video games, either single player or multiplayer.
- A **handheld game device** is small enough to fit in one hand, making it more portable than a game console.

What Does it Mean to be a Digital Citizen? (1 of 3)

Digitally literate people know how to copy and paste information from one source into another. Digital citizens, however, know when it is appropriate to copy and paste information, how to properly credit the source.

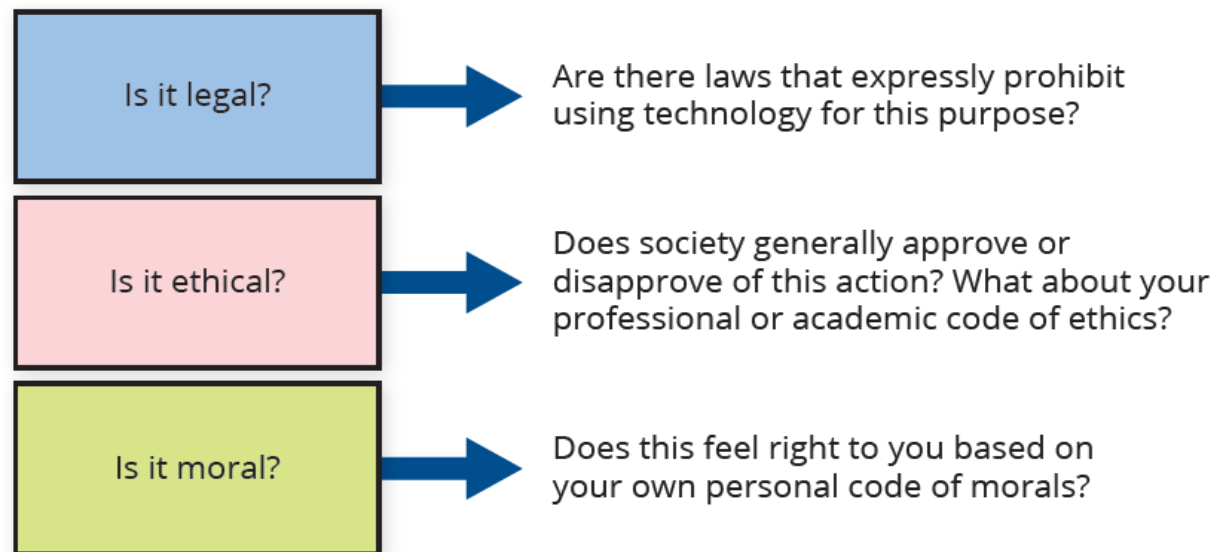


Figure 1-17 Determining how to use technology involves several gray areas.

What Does it Mean to be a Digital Citizen? (2 of 3)

Legal and Ethical Responsibilities of a Digital Citizen

- **Cyberbullying** is a form of bullying that involves digital devices and platforms such as social media sites, online forums, messaging apps, and email.
- **Missouri** is one state that has attempted to define and enact punishment for cyberbullying. Missouri statute defines cyberbullying as bullying “through the transmission of a communication, including but not limited to, a message, text, sound, or image by means of an electronic device.”

What Does it Mean to be a Digital Citizen? (3 of 3)

How Companies and Schools Can Protect Themselves

- The Internet makes it easier to **plagiarize**, which is copying or using someone else's work and claiming it as your own.
- Cyberbullying, which is known to be extremely harmful to its victims, is an issue that schools, students, families, and communities are struggling to deal with.
- To help discourage plagiarism of other people's work, teachers often require students to submit papers using a service, such as Turnitin, that automatically checks for plagiarized passages; Turnitin can also help students check for uncited passages and more before submitting.

Green Computing Concepts

- The practice of **green computing** involves reducing electricity consumed and environmental waste generated when using computers, mobile devices, and related technologies.
- The U.S. Department of Energy and the U.S. Environmental Protection Agency developed the **ENERGY STAR program** to help reduce the amount of electricity used by computers and related devices.



Figure 1-22 Look for the ENERGY STAR logo when purchasing appliances or devices.

Electrical waste



Technology to Assist Users with Disabilities

- Technologies
 - Screen readers
 - Alternative text (alt text)
 - Captioning and speech recognition software
 - Input devices for people with physical disabilities
- Stephen Hawking's Voice and the Machine That Powers It



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Thank You

